

### ABSTRACT OF THE DISCLOSURE

Enhanced telepresence and telesurgery systems automatically update coordinate transformations so as to retain alignment between movement of an input device and movement of an end effector as displayed adjacent the input device. A processor maps a controller workspace with an end effector workspace, and effects movement of the end effector in response to the movement of the input device. This allows the use of kinematically dissimilar master and slave linkages. Gripping an input member near a gimbal point and appropriate input member to end effector mapping points enhance the operator's control. Dexterity is enhanced by accurately tracking orientational and/or angles of movement, even if linear movement distances of the end effector do not correspond to those of the input device.